



R. K. Institute of Engineering and Technology
Approved by AICTE, New Delhi and Affiliated to SCTE&VT, Odisha

CIVIL ENGINEERING

SEMESTER : 5th

FROM :01/07/2026 TO :05/11/2026

NAME OF THE FACULTY : Er. SATYANARAYAN PATTNAIK

SUBJECT : BUILDING SERVICES AND MAINTENANCE

TOTAL CLASS AVAILABLE IN SEMESTER: 45 nos

NO. OF PERIODS : 03/ WEEK

Class No.	Unit	Topic / Sub-topic	Teaching Method	Learning Outcome
1	I	Introduction to Building Services – Scope and Importance	Lecture	Understand the concept of building services
2	I	Classification of Buildings as per NBC	Lecture	Classify buildings according to NBC
3	I	Functional Requirements of Buildings	Lecture	Explain functional requirements of buildings
4	I	HVAC (Heating, Ventilation and Air Conditioning) – Introduction	Lecture	Understand HVAC systems
5	I	Escalators, Lifts and Vertical Transportation – Overview	Lecture	Identify vertical transportation systems
6	I	Fire Safety, Protection and Control Systems	Lecture	Explain fire protection systems
7	I	Plumbing Services, Rainwater Harvesting & Solar Water Heating	Lecture	Understand plumbing and water conservation systems
8	I	Lighting, Acoustics, Sound Insulation & Electrical Installations	Lecture	Explain essential building services
9	I	Role and Responsibilities of Building Services Engineer	Lecture	Understand professional responsibilities
10	I	Building Management System (BMS) – Concept & Components	Lecture + Discussion	Explain BMS functions
11	I	Smart Buildings – Features & Applications	Lecture	Understand smart building concepts
12	I	Revision & Unit Test	Practice/Test	Assess Unit-I
13	II	Vertical Communication – Objectives & Modes	Lecture	Explain vertical communication systems
14	II	Lifts – Types & Applications	Lecture	Classify lift systems



R. K. Institute of Engineering and Technology

Approved by AICTE, New Delhi and Affiliated to SCITE&VT, Odisha

Class No.	Unit	Topic / Sub-topic	Teaching Method	Learning Outcome
15	II	Components of Lift – Lift Well, Pit, Hoist Way, Lift Car, Machine Room	Lecture + Diagram	Identify lift components
16	II	Lift Accessories – Buffers, Doors, Ropes, Call Indicators & Controls	Lecture	Explain lift mechanisms
17	II	Design Provisions for Lift Space & Enclosure	Lecture + Numerical	Calculate lift shaft dimensions
18	II	Safety Measures for Lift Installation & Operation	Lecture	Explain lift safety provisions
19	II	Escalators – Types, Components & Working	Lecture	Understand escalator systems
20	II	Design Provisions & Safety Measures for Escalators	Lecture	Explain escalator design requirements
21	II	Ramps – Necessity, Design Considerations & Gradient Calculation	Lecture + Numerical	Design ramps
22	II	Barrier-Free Design for Elderly & Physically Challenged Persons	Lecture	Explain accessibility features
23	II	Comprehensive Revision & Numerical Practice	Practice	Strengthen Unit-II concepts
24	II	Unit Test	Test	Assess Unit-II
25	III	Fire Protection Requirements for Multistoried Buildings	Lecture	Understand fire protection requirements
26	III	Causes of Fire & Fire Detection Systems	Lecture	Identify fire hazards
27	III	Fire Extinguishing Systems & Working Principles	Lecture + Demonstration	Explain fire suppression systems
28	III	NBC Provisions for Fire Safety	Lecture	Apply NBC fire safety requirements
29	III	Fire-Resistant Materials & Fire-Resistant Construction	Lecture	Identify fire-resistant construction practices
30	III	Fire Safety Inspection & Building Evacuation Procedures	Lecture	Understand inspection and evacuation planning
31	III	Revision & Unit Test	Practice/Test	Assess Unit-III
32	IV	Introduction to Plumbing Services & AHJ Approval	Lecture	Understand plumbing regulations
33	IV	Plumbing Terminology, Fixtures, Traps & Interceptors	Lecture + Demonstration	Identify plumbing components

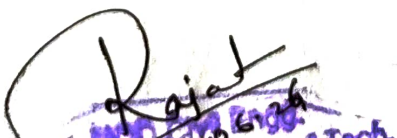


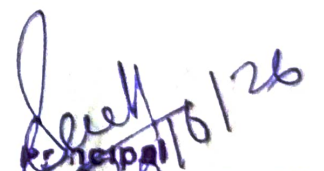
R. K. Institute of Engineering and Technology

Approved by AICTE New Delhi and Affiliated to SCTE & VT, Odisha

Class No.	Unit	Topic / Sub-topic	Teaching Method	Learning Outcome
34	IV	Water Supply System – Storage, Cold & Hot Water Supply	Lecture	Explain building water supply systems
35	IV	Drainage Systems – One Pipe & Two Pipe Systems	Lecture	Compare drainage systems
36	IV	Vent Pipes, Types of Vents & Purpose of Venting	Lecture	Explain plumbing ventilation
37	IV	Grey Water & Reclaimed Water – Concepts & Applications	Lecture	Understand water reuse systems
38	IV	Pipe Materials – GI, PVC, CPVC, HDPE, Copper & Others	Lecture	Select suitable plumbing materials
39	IV	Pipe Joints, Fittings, Valves, Hangers & Supports	Lecture + Demonstration	Identify plumbing accessories
40	IV	Selection of Plumbing Materials for Different Applications	Lecture	Apply material selection principles
41	IV	Practical Case Study on Building Plumbing Layout	Discussion + Drawing	Interpret plumbing layouts
42	IV	Comprehensive Revision of Plumbing Services	Practice	Strengthen plumbing concepts
43	IV	Model Test & Numerical/Objective Practice	Test	Evaluate learning outcomes
44	IV	Doubt Clearing & Complete Course Revision	Discussion	Reinforce all units
45	IV	Final Internal Assessment & Course Wrap-up	Test/Discussion	Complete course assessment


27.06.26
Sign of Faculty


27.06.26
R. K. Institute of Engg. & Tech.
Kantapada, Nallabuttack
Sign of HOD


27/6/26
Principal
R. K. INSTITUTE OF ENGINEERING & TECHNOLOGY
KANTAPADA, NALLABUTTACK